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Efficacy of Integrated Traditional Chinese Medicine Nursing Care in Preventing Abdominal Distension and Constipation Following Unilateral Total Knee Arthroplasty: A Postprint

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Abstract

Objective To investigate the efficacy of comprehensive Traditional Chinese Medicine nursing intervention in preventing postoperative abdominal distension and constipation following unilateral total knee arthroplasty. **Methods** One hundred twenty patients undergoing unilateral total knee arthroplasty were randomly divided into a control group and an observation group, with 60 cases in each group. The control group received conventional methods for preventing postoperative abdominal distension and constipation, while the observation group received comprehensive Traditional Chinese Medicine nursing intervention in addition to conventional care, including Chinese herbal hot compress, constipation massage therapy combined with acupoint plastering. The incidence of postoperative constipation was recorded in both groups, and the degree of postoperative abdominal distension was evaluated. **Results** There was no statistically significant difference in the incidence of constipation at 24 h postoperatively between the two groups ($P>0.05$). At 48 h, 72 h, and postoperative day 7, the incidence of constipation in the observation group was lower than that in the control group, with statistically significant differences ($P<0.05$). Evaluation of abdominal distension degree at 24 h, 48 h, 72 h, and postoperative day 7 showed that the observation group had milder symptoms than the control group, with statistically significant differences ($P<0.05$). **Conclusion** Comprehensive Traditional Chinese Medicine nursing can effectively alleviate the degree of postoperative abdominal distension in patients undergoing unilateral total knee arthroplasty, reduce the incidence of postoperative constipation, and promote early postoperative defecation.

Full Text

Title and Authorship

Effect of Traditional Chinese Medicine Comprehensive Nursing Interventions on Prevention of Abdominal Distension and Constipation after Unilateral Total Knee Replacement

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Abstract

Objective: To investigate the effect of Traditional Chinese Medicine (TCM) comprehensive nursing interventions on prevention of abdominal distension and constipation after unilateral total knee replacement.

Methods: Patients undergoing unilateral total knee arthroplasty were randomly divided into control and observation groups. The control group received conventional nursing measures to prevent postoperative abdominal distension and constipation, while the observation group received additional TCM comprehensive nursing interventions including Chinese medicine hot compress packs, constipation massage therapy combined with acupoint application. The incidence of postoperative constipation was recorded and the degree of postoperative abdominal distension was evaluated between the two groups.

Results: There was no significant difference in constipation incidence at hours postoperation between the two groups ($P>$). However, at hours and postoperative day , the constipation incidence in the observation group was significantly lower than that in the control group ($P<$). Evaluation of abdominal distension at postoperative day showed milder symptoms in the observation group compared with the control group ($P<0.05$).

Conclusion: TCM comprehensive nursing interventions can effectively relieve the degree of abdominal distension, reduce the incidence of constipation, and promote early postoperative defecation in patients after unilateral total knee replacement.

Keywords: total knee replacement; abdominal distension; constipation; comprehensive Traditional Chinese Medicine nursing; risk factors; acupoint application

Introduction

With the accelerating aging process of China' s population, the incidence of knee joint diseases has shown a significant upward trend, including various inflammatory knee arthritis and traumatic arthritis. If left untreated, knee joint

lesions in elderly patients often lead to loss of knee function and seriously affect quality of life. Total knee replacement has become a recognized optimal treatment for end-stage knee osteoarthritis patients. However, postoperative bed rest and analgesia can cause gastrointestinal dysfunction, increasing the risk of abdominal distension and constipation. Traditional Chinese medicine believes that constipation is caused by improper diet, emotional disorders, external pathogenic factors, and constitutional deficiencies, with pathogenesis mainly involving heat accumulation, qi stagnation, cold congelation, and deficiency of qi, blood, yin, and yang leading to intestinal transmission dysfunction. This study explores the effect of TCM comprehensive nursing interventions in preventing abdominal distension and constipation after unilateral total knee replacement.

1. Materials and Methods

1.1 Study Participants

This study enrolled patients undergoing unilateral total knee replacement surgery. Inclusion criteria: (1) Patients with knee osteoarthritis undergoing unilateral total knee replacement; (2) Meeting diagnostic criteria for knee osteoarthritis; (3) No age or gender restrictions. Exclusion criteria: (1) Currently taking any medications affecting gastrointestinal motility; (2) Comorbid conditions that may cause gastrointestinal dysfunction; (3) Allergies to medications or adhesive tape; (4) Abnormal heat sensation.

A total of patients were randomly divided into control and observation groups using a numerical table method. The observation group consisted of cases with ages ranging from to years (mean age years), while the control group consisted of cases with ages ranging from to years (mean age years). There were no significant differences between the two groups in general characteristics such as gender and age ($P>$). This study was approved by the hospital ethics committee, and all patients and their families provided informed consent.

1.2 Interventions

Control Group The control group received conventional nursing care: (1) Health education: Providing advance explanation of postoperative constipation knowledge including etiological factors, symptoms, and adverse effects, instructing patients on timed defecation, bedpan use, and practicing bed turning; (2) Dietary guidance: Advising light, easily digestible, fiber-rich foods, gradual transition from liquid to normal diet, daily water intake of at least mL, and minimizing gas-producing foods; (3) Psychological guidance: Emphasizing the importance of maintaining emotional stability; (4) Defecation guidance: Instructing on bedpan use and explaining the necessity of constipation prevention; (5) Functional exercise: Under the premise of not affecting surgical incision and fracture healing, encouraging early ambulation and limb functional exercise to promote early recovery of digestive function.

Observation Group The observation group received TCM comprehensive nursing interventions based on conventional care, implemented continuously for days starting from postoperative day . The intervention consisted of three steps:

Step 1: Chinese Medicine Hot Compress Pack Therapy

Preparation: A hot compress pack was made from Evodia rutaecarpa, white mustard seed, radish seed, and perilla seed. The pack was heated in a microwave at medium power for minutes, then wrapped in disposable sterile towels. When the temperature reached a suitable level (measured at °C with a thermometer gun), patients were instructed to lie supine in bed, and the hot pack was placed on the Shenque (CV8) area and Tianshu (ST25) points on both sides, then covered with clothing and bedding. Frequency: once daily for minutes per session.

Step 2: Constipation Massage Therapy

Methods: Using abdominal rubbing, kneading, and point-pressing techniques on Zhongwan (CV12), Tianshu (ST25), and Guanyuan (CV4) acupoints. Frequency: once daily after hot compress therapy, minutes per session.

Step 3: Acupoint Application Therapy

Method: g of rhubarb powder was mixed with honey and vaseline to create an ointment, which was placed on a patch and applied to the Shenque (CV8) acupoint. Frequency: once daily.

1.3 Outcome Measures

Constipation Assessment: Diagnosis was based on Rome criteria: (1) Straining during >% of defecations; (2) Lumpy or hard stools in >% of defecations; (3) Sensation of incomplete evacuation in >% of defecations; (4) Sensation of anorectal obstruction/blockage in >% of defecations; (5) Manual maneuvers required in >% of defecations; (6) < spontaneous bowel movements per week.

Abdominal Distension Scoring: Evaluated using a -point scale: points = soft abdomen, with gas passage and defecation, normal appetite; points = tolerable abdominal distension and pain, with gas passage and defecation, average appetite; points = tolerable abdominal distension and pain, gastric and abdominal fullness, gas passage but no defecation, poor appetite; points = tolerable abdominal distension and pain, gastric and abdominal fullness, no gas passage or defecation, weak bowel sounds; points = severe abdominal distension and pain; points = gastric and abdominal fullness, no gas passage or defecation, absent bowel sounds. Assessments were conducted by responsible nurses at hours and postoperative day .

1.4 Statistical Analysis

SPSS software was used. Measurement data were expressed as mean \pm standard deviation ($\bar{x} \pm s$) and compared between groups using t-test. Count data were

expressed as percentages (%) and analyzed using χ^2 test. The significance level was set at $\alpha=$, with $P<$ considered statistically significant.

2. Results

The comparison of postoperative constipation incidence between the two groups is shown in . There was no significant difference in constipation incidence at hours postoperation between the two groups ($P>$). However, at hours and postoperative day , the constipation incidence in the observation group was significantly lower than that in the control group ($P<0.05$).

The comparison of postoperative abdominal distension between the two groups is shown in . Evaluation at hours and postoperative day showed significantly milder abdominal distension in the observation group compared with the control group ($P<0.05$).

3. Discussion

Traditional Chinese medicine believes that postoperative blood extravasation and qi stagnation with blood stasis affect qi and blood transportation, leading to spleen-stomach dysfunction and impaired intestinal transmission. Additionally, postoperative pain prevents rehabilitation exercise and prolonged bed rest slows intestinal peristalsis, resulting in constipation. Chinese medicine hot compress packs combine triple effects: herbal effects, thermal effects, and meridian effects. The packs, made from coarse salt and *Evodia rutaecarpa* and heated in a microwave or incubator, utilize salt's property of guiding herbs downward and softening hard masses. With the aid of heat, the medicinal power rapidly penetrates the skin to reach the abdominal cavity. Applying hot compress packs to abdominal acupoints such as Tianshu can stimulate the skin, promote capillary dilation, allow warm medicinal power to quickly permeate the abdominal cavity, increase gastrointestinal blood circulation, accelerate intestinal peristalsis, and advance gas passage and defecation. Tu et al. [] found that Chinese medicine hot compress packs combined with auricular point pressing improved defecation time and comfort while reducing constipation scores in post-stroke constipation patients.

Wang [] reported that compared with conventional massage, using abdominal rubbing, kneading, and point-pressing on Zhongwan, Tianshu, and Guanyuan acupoints showed better effects in improving constipation symptoms. Research indicates that meridian-based massage nursing is superior to conventional nursing in improving constipation, with better effects observed with longer intervention duration []. Zhongwan acupoint functions to regulate stomach qi, transform dampness, harmonize the middle, and stop vomiting; Guanyuan acupoint can

tonify the original qi and supplement the lower jiao; Tianshu acupoint can regulate the intestines, regulate qi, and digest food. Stimulating these acupoints through massage can regulate the spleen-stomach, unblock the fu organs, promote qi movement, lubricate the intestines, promote intestinal fluid secretion, soften stools, increase intestinal peristalsis, effectively stimulate the defecation reflex, and facilitate smooth bowel movements.

The selected ingredients for acupoint application include rhubarb, mirabilite, magnolia bark, and bitter orange immature fruit, which are commonly used to treat constipation. Rhubarb can purge accumulation, cleanse the gastrointestinal tract, and facilitate water and grain passage; mirabilite clears heat, softens hardness, and moistens dryness; magnolia bark widens the intestines, descends qi, and relieves fullness; bitter orange immature fruit promotes qi movement, transforms accumulation, and reduces distension. Combined, these herbs have the effects of moistening the intestines, facilitating bowel movements, regulating fu organ qi, promoting gastrointestinal peristalsis, and enhancing immunity []. Among the selected acupoints, Shenque is an important point on the conception vessel, closely related to the stomach, spleen, and kidney, connecting to all meridians, serving as the intersection of the conception and penetrating vessels, connecting to the twelve meridians and communicating with the five zang and six fu organs. Stimulating this acupoint can dredge meridians and facilitate bowel movements. Related reports indicate that Chinese medicine acupoint application can improve constipation symptoms [].

This study implemented TCM comprehensive nursing interventions based on conventional care and observed the effects of Chinese medicine hot compress packs, constipation massage therapy combined with acupoint application in preventing abdominal distension and constipation after unilateral total knee replacement. The results showed that at hours and postoperative day , constipation incidence in the observation group was lower than in the control group, and abdominal distension evaluation at postoperative day was milder in the observation group ($P < .05$), suggesting that the combined application of these three TCM modalities can further relieve postoperative abdominal distension, reduce constipation risk, and promote early postoperative defecation. Moreover, TCM comprehensive nursing interventions are simple to operate, highly comfortable, and easily accepted by patients, making them worthy of clinical promotion and application.

Conflict of Interest Statement

The authors declare no conflict of interest in this article.

References

- [] Xu Xin, Shi Xiaojun, Hu Xiaoye, et al. Effect of ginger hot compress at umbilicus in relieving abdominal distension after adolescent idiopathic scoliosis surgery [J]. Chinese Journal of Nursing, .
- [] Liu Fengchun, Gao Li, Chang Hong, et al. Application effect of self-made Chinese medicine acupoint patch in Parkinson' s patients with constipation [J]. Chinese Journal of Integrative Medicine on Cardio-Cerebrovascular Disease, .
- [] Tu Qiaomei, Wu Shuhua. Application effect of Chinese medicine hot compress pack combined with auricular point pressing in treating post-stroke constipation [J]. Chinese Community Physician, .
- [] Wang Yanan. Clinical study on tonifying spleen and qi massage in treating deficiency constipation [D]. Kunming: Yunnan University of Traditional Chinese Medicine, .
- [] Zou Bini, Wu Yiyan, Cheng Lin, et al. Observation on the efficacy of meridian acupoint massage on chronic constipation in elderly stroke patients [J]. Geriatrics and Health Care, .
- [] Chen Shuo, Lin Qiufang. Clinical study on Tongbian plaster acupoint application in treating functional constipation [J]. Shenzhen Journal of Integrated Traditional Chinese and Western Medicine, .
- [] Lu Meigui, Zhong Lihong, Li Jianmei. Clinical observation on Chinese medicine acupoint application in treating constipation after fracture surgery [J]. Chinese Journal of Traditional Medical Science and Technology, .
- [] Gastrointestinal Dynamics Group, Gastroenterology Branch, Chinese Medical Association; Colorectal and Anal Surgery Branch, Surgery Branch, Chinese Medical Association. Chinese guidelines for chronic constipation diagnosis and treatment (, Wuhan) [J]. Gastroenterology, .
- [] Li Shuang, Wang Wei. Research progress on surgical treatment of knee osteoarthritis [J]. Chinese Journal of Bone and Joint Injury, .
- [] Bian Yanyan, Cheng Kaiyuan, Chang Xiao, et al. Preliminary statistics and analysis of artificial hip and knee replacement surgeries [J]. Chinese Journal of Orthopaedics, .
- [] Liu Fei. Research progress on total knee replacement [J]. Chinese Journal of Bone and Joint, .
- [] Xie Qianqian. Related factors and nursing strategies for postoperative constipation in orthopedic joint replacement patients [J]. Journal of Clinical Rational Drug Use, .
- [] Zhang Boli, Wu Mianhua. Internal Medicine of Traditional Chinese Medicine [M]. Beijing: China Press of Traditional Chinese Medicine, .

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